

AGAGC8PNS01B

Gas Conversion Kit, Propane-to-Natural Non-Condensing (80%) Furnace 45,000 BTU/h to 155,000 BTU/h Models Only

Installation Instructions



A200203

NOTE: Read the entire instruction manual before starting the installation.

SAFETY CONSIDERATION

WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK, AND CARBON MONOXIDE POISONING HAZARD

Failure to follow this warning could result in personal injury or death. This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, explosion, or production of carbon monoxide could result causing property damage, personal injury, or loss of life. The qualified service agency is responsible for the proper installation of this furnace with this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

AVERTISSEMENT


LE FEU, L'EXPLOSION, CHOC ELECTRIQUE, ET MONOXYDE DE CARBONE EMPOISONNER

Cette trousse de conversion doit être installée par un service d'entretien qualifié, selon les instructions du fabricant et selon toutes les exigences et tous les codes pertinents de l'autorité compétente. Assurez-vous de bien suivre les instructions dans cette notice pour réduire au minimum le risque d'incendie, d'explosion ou la production de monoxyde de carbone pouvant causer des dommages matériels, de blessure ou la mort. Le service d'entretien qualifié est responsable de l'installation de cette trousse. L'installation n'est pas adéquate ni complète tant que le bon fonctionnement de l'appareil converti n'a pas été vérifié selon les instructions du fabricant fournies avec la trousse.

Installing and servicing heating equipment can be hazardous due to gas and electrical components. Only trained and qualified personnel should install, repair, or service heating equipment.

Untrained personnel can perform basic maintenance functions such as cleaning and replacing air filters. Trained service personnel must perform all other operations. When working on heating equipment, observe precautions in the literature, on tags, and on labels attached to or shipped with the unit, and other safety precautions that may apply.

Follow all safety codes. In the United States, follow all safety codes including the current edition of the National Fuel Gas Code (NFGC) NFPA No. 54/ANSI Z223.1. In Canada, refer to the current edition of the National Standard of Canada, Natural Gas and Propane Installation Codes (NSCNGPIC), CAN/CSA-B149.1 and .2. Wear safety glasses and work gloves. Have a fire extinguisher available during start-up, adjustment steps, and service calls.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the furnace and in instructions or manuals, be alert to the potential for personal injury. Understand the signal words DANGER, WARNING, CAUTION and NOTE. The words DANGER, WARNING, and CAUTION are used with the safety alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies a hazard which could result in personal injury or death. CAUTION is used to identify unsafe practices which may result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

INTRODUCTION

WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK AND CARBON MONOXIDE POISONING HAZARD

Failure to follow instructions could result in personal injury, death or property damage.

Improper installation, adjustment, alteration, service, maintenance, or use can cause carbon monoxide poisoning, explosion, fire, electrical shock, or other conditions, which could result in personal injury or death. Consult your distributor or branch for information or assistance. The qualified installer or agency must use only factory-authorized kits or accessories when servicing this product.

WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury, death or property damage.

Gas supply **MUST** be shut off before disconnecting electrical power and proceeding with conversion.

! WARNING**ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD**

Failure to follow this warning could result in personal injury, death or property damage.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

! CAUTION**UNIT OPERATION HAZARD**

Failure to follow this caution may result in unit damage or improper operation.

Do NOT use this kit with furnaces with an input of 26,000 BTUH; the unit will be severely over-fired. This could result in delayed ignition, sooting or premature heat exchanger failure.

This instruction covers the installation of gas conversion kit to convert the following furnaces from propane gas usage to natural gas usage. See appropriate section for your furnace type.

SINGLE-STAGE NON-CONDENSING FURNACES

Induced-Combustion furnaces with 42,000 to 154,000 BTUH (not all models have all sizes) gas input rates and a.) Single-Stage, 4-Way Multipoise, Hot Surface Ignition with PSC blower motor or b.) Single-Stage gas valve with Fixed-Speeds Constant Torque ECM (FCT) blower motor.

TWO-STAGE & VARIABLE NON-CONDENSING FURNACES

Induced-Combustion furnaces with 42,000 to 154,000 BTUH (not all models have all sizes) a.) Two-Stage gas valve with Variable-Speed Constant Airflow ECM (VCA), b.) Two-Stage gas valve with Variable-Speed Constant Torque ECM (VCT) blower motor, or c.) Two-Stage with PSC motor.

Table 1 – Kit Contents

QUANTITY	DESCRIPTION
2	VALVE CVRSN KIT - W/R SPRING
4	BAG ASSEMBLIES OF ORIFICES
1	LABEL 347789-201 through 347789-205
1	PLUG, PIPE
1	INSTRUCTIONS

DESCRIPTION AND USAGE

This kit is designed for use in the furnaces listed in [Table 2](#) or [Table 3](#), see [Table 1](#) for kit contents. To accommodate many different furnace models, more parts are shipped in kit than will be needed to complete conversion. When installation is complete, discard extra parts.

SINGLE-STAGE NON-CONDENSING FURNACES**Table 2 – Model Numbers Beginning with:**

58S(T/P/C/B)	58DL	58PH	31(0/1/3)
8(0/1/2)0S	8(0/1/2)1S	PG8M(A/E)	PG8J(A/E)
PG80ES(A/L)	PG80MS(A/L)	(N/R)8MS	(F/G/N/R)8MX
N80VS	(N/R)80ES(N/L)	(N/R)80MS(N/L)	WF(M/E)(R/L)

TWO-STAGE & VARIABLE NON-CONDENSING FURNACES**Table 3 – Model Numbers Beginning with:**

58CV	58CT	58T(N/P)	31(2/4/5)
82(0/1)T	88(0/1)T	PG8(M/J)V	PG80V
(F/G)8MT	(F/G)8MV	(F/G/N)80CTL	(F/G/N)80V

INSTALLATION**! WARNING****FIRE, EXPLOSION, ELECTRICAL SHOCK AND CARBON MONOXIDE POISONING HAZARD**

Failure to follow instructions could result in personal injury, death or property damage.

Improper installation, adjustment, alteration, service, maintenance, or use can cause carbon monoxide poisoning, explosion, fire, electrical shock, or other conditions, which could result in personal injury or death. Consult your distributor or branch for information or assistance. The qualified installer or agency must use only factory-authorized kits or accessories when servicing this product.

! WARNING**FIRE, EXPLOSION, ELECTRICAL SHOCK, AND CARBON MONOXIDE POISONING HAZARD**

Failure to follow this warning could result in personal injury or death.

This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, explosion, or production of carbon monoxide could result causing property damage, personal injury, or loss of life. The qualified service agency is responsible for the proper installation of this furnace with this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

! AVERTISSEMENT**LE FEU, L'EXPLOSION, CHOC ELECTRIQUE, ET MONOXYDE DE CARBONE EMPOISONNER**

Cette trousse de conversion doit être installée par un service d'entretien qualifié, selon les instructions du fabricant et selon toutes les exigences et tous les codes pertinents de l'autorité compétente. Assurez-vous de bien suivre les instructions dans cette notice pour réduire au minimum le risque d'incendie, d'explosion ou la production de monoxyde de carbone pouvant causer des dommages matériels, de blessure ou la mort. Le service d'entretien qualifié est responsable de l'installation de cette trousse. L'installation n'est pas adéquate ni complète tant que le bon fonctionnement de l'appareil converti n'a pas été vérifié selon les instructions du fabricant fournies avec la trousse.

! WARNING**FIRE, EXPLOSION, ELECTRICAL SHOCK HAZARD**

Failure to follow this warning could result in personal injury, death or property damage.

Gas supply **MUST** be shut off before disconnecting electrical power and proceeding with conversion.

! WARNING**FIRE, EXPLOSION, ELECTRICAL SHOCK HAZARD**

Failure to follow this warning could result in personal injury, death or property damage.

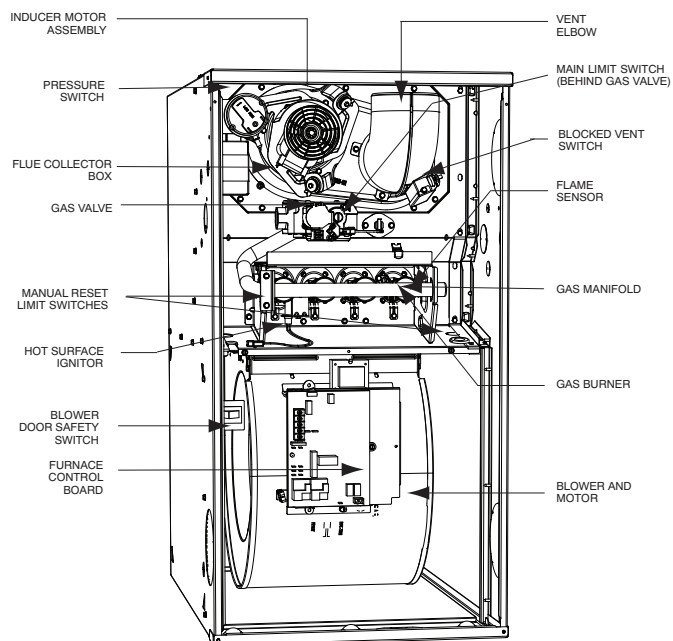
Gas supply **MUST** be shut off before disconnecting electrical power and proceeding with conversion.

! WARNING**ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD**

Failure to follow this warning could result in personal injury, death or property damage.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

1. Set room thermostat to lowest setting or "OFF".
2. Disconnect power at external disconnect, fuse or circuit breaker.
3. Turn off gas at external shut-off or gas meter.
4. Remove outer doors and set aside.
5. Turn electric switch on gas valve to OFF.



Representative drawing only, some models may vary in appearance. A190086

Fig. 1 – Representative Furnace Drawing

MANIFOLD/ORIFICE/BURNER REMOVAL**! CAUTION****UNIT OPERATION HAZARD**

Failure to follow this caution may result in unit damage or improper operation.

Label all wires prior to disconnection when servicing controls.

! ATTENTION**D'EQUIPEMENT D'OPERATION**

Toute erreur de câblage peut être une source de danger et de panne.

Lors des opérations d'entretien des commandes, étiqueter tous les fils avant de les déconnecter.

NOTE: Use a back-up wrench on the gas valve to prevent the valve from rotating on the manifold or damaging the mounting to the burner box. See Fig. 2 and Fig. 3.

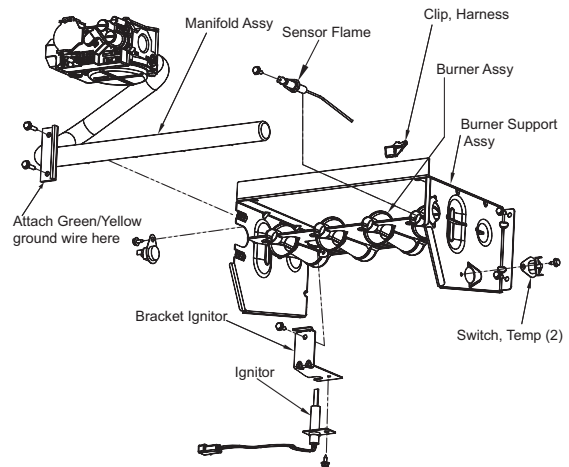


Fig. 2 – 80% Burner

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1. Disconnect the gas pipe from gas valve and remove pipe from the furnace casing.
2. Disconnect the connector harness from gas valve. Disconnect wires from Hot Surface Igniter (HSI) and Flame Sensor.
3. Support the manifold and remove the 4 (four) screws that secure the manifold assembly to the burner box and set aside.
4. Note the location of the green/yellow wire ground wire for re-assembly later.
5. Remove wires from both rollout switches.
6. Slide one-piece burner assembly out of slots on sides of burner box.
7. Remove the flame sensor from the burner assembly.
8. Remove the orifices from the manifold and discard.

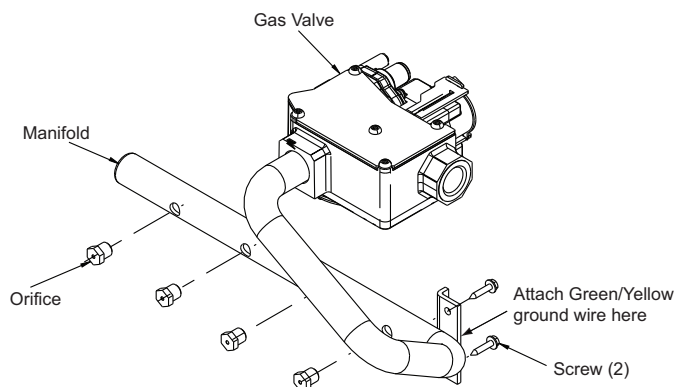


Fig. 3 – 80% Manifold

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NOx DEVICE INSTALLATION (when required)

The following models must have NOx baffles installed. NOx baffles are not included in this kit and must be ordered separately or reused if retained from original conversion to Propane.

58STX	58DLX	58PHY	58TN1
58CVX	311JA	313ABV	312
58CTY	315J	314J	310J
801S	811S	821S	821T
PG8J(A/E/V)	PG80VTL	PG80ESL	881T
(N/R)8MSL	(N/R)8MXL	N80VSL	58TP1
(F/G)8MTL	(N/R)80ESL	(F/G)8MVL	WF(M/E)L
(F/G)80CTL	(F/G)80VTL		

For NOx device installation, follow these additional steps:

1. Use a pair of needle nose pliers to install the NOx device.
2. Squeeze the sides of the device, if necessary, to install in the heat exchanger.
3. Re-install screw in hole underneath heat exchanger inlet to secure NOx device in the heat exchanger.

NOTE: It is very IMPORTANT to reinstall the NOx bracket mounting screw.

4. Repeat steps for each heat exchanger.

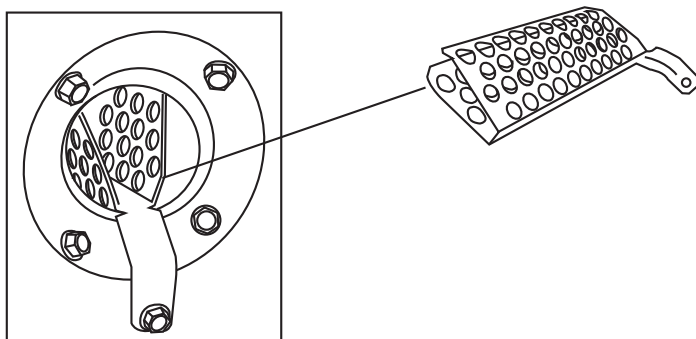


Fig. 4 – NOx Device

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ORIFICE SELECTION/DERATE



CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage.

DO NOT re-drill burner orifices. Improper drilling may result in burrs, out-of-round holes, etc. Obtain new orifices if orifice size must be changed. (See Fig. 5)

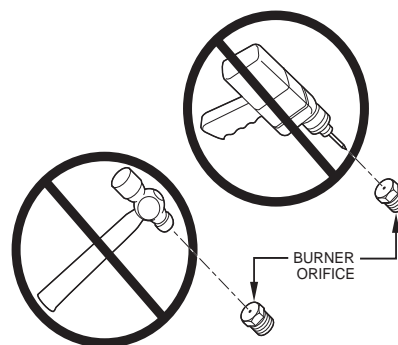


Fig. 5 – Burner Orifice

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Determine natural gas orifice size and manifold pressures for correct input at installed altitude by using [Table 4](#) (Single-Stage - 22,000 BTUH), [Table 5](#) (Two-Stage 22,000BTUH), [Table 6](#) (Single-Stage - 21,000 BTUH), or [Table 7](#) (Two-Stage - 21,000 BTUH).

NOTE: All models in all positions except Low NOx models in downflow and horizontal positions use [Table 4](#) and [Table 5](#) (22,000 BTUH per burner). Low NOx models in downflow or horizontal positions must use [Table 6](#) and [Table 7](#) (21,000 BTUH per burner). See input listed on rating plate.

1. Obtain yearly heat-value average (at installed altitude) for local gas supply.
2. Obtain yearly specific-gravity average for local gas supply.
3. Find installation altitude in [Table 4](#) through [Table 7](#).
4. Find closest natural gas heat value and specific gravity in [Table 4](#) through [Table 7](#).
5. Follow heat-value line and specific-gravity line to point of intersection to find orifice size and high and low manifold pressure settings.


Furnace gas input rate on furnace rating plate is for installations at altitudes up to 2000 ft.

The input rating for altitudes above 2000 ft. must be reduced by 4 percent for each 1000 ft. above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

SINGLE STAGE GAS VALVE

CONVERSION KIT RATING PLATE					
THIS APPLIANCE HAS BEEN CONVERTED TO USE NATURAL GAS FOR FUEL. REFER TO KIT INSTRUCTIONS FOR CONVERSION PROCEDURES. USE PARTS SUPPLIED BY MANUFACTURER AND INSTALLED BY QUALIFIED PERSONNEL. SEE EXISTING RATING PLATE FOR APPLIANCE MODEL NO. AND INPUT RATING.					
<small>NOTE: Furnace gas input rate on rating plate is for installations up to 2000 ft. (610m) above sea level. In U.S.A. the input rating for altitudes above 2000 ft. (610m) must be derated by 4% for each 1000 ft. (305m) above sea level. In Canada the input rating must be derated (per chart below) for altitudes of 2000 ft. (610m) to 4500 ft. (1372m) above sea level.</small>					
KIT NO.: AGAGC8PNS01B		(SUPERSEDES: KGBPN42011SP, NAHD00901NG, AGAGC8PNS01A)		FUEL USED: NATURAL GAS	
APPLIANCE MODELS	USA % DERATE PER 1000 FT.	CANADA % DERATE FOR 2000-4500 FT.	NATURAL GAS PRESSURE		IN. W.C. (PO C.E.)
			Max. Inlet Gas Pressure (Press. Max. D'Admission De Gaz)		13.6
			Min. Inlet Gas Pressure (Press. Min. D'Admission De Gaz)		4.5
			(For Purpose of Input Adjustment) (Pour L'Adjustment D'Entree)		
58S(T/P/C/B), 58DL, 58PH, 31(0/1/3), 8(0/1/2)OS, 8(0/1/2)1S, PG8M(A/E), PG8J(A/E), PG80ES(A/L), PG80MS(A/L), (N/R)8MS, (F/G/N/R)8MX, N80VS, (N/R)80ES(N/L), (N/R)80MS(N/L), WF(M/E)(R/L)	4%	10%	ALTITUDE		
			Manifold Pressure 0-2,000 ft. (0 - 610 m)		3.2 - 3.8 797 - 946
			Pression Tubulure 2,000 - 10,000 ft. (610 - 3050 m)		
			Refer to Installation Manual Respecter les Instruction D'Installation		




347789-201 REV.-

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TWO STAGE GAS VALVE

CONVERSION KIT RATING PLATE					
THIS APPLIANCE HAS BEEN CONVERTED TO USE NATURAL GAS FOR FUEL. REFER TO KIT INSTRUCTIONS FOR CONVERSION PROCEDURES. USE PARTS SUPPLIED BY MANUFACTURER AND INSTALLED BY QUALIFIED PERSONNEL. SEE EXISTING RATING PLATE FOR APPLIANCE MODEL NO. AND INPUT RATING.					
<small>NOTE: Furnace gas input rate on rating plate is for installations up to 2000 ft. (610m) above sea level. In U.S.A. the input rating for altitudes above 2000 ft. (610m) must be derated by 4% for each 1000 ft. (305m) above sea level. In Canada the input rating must be derated (per chart below) for altitudes of 2000 ft. (610m) to 4500 ft. (1372m) above sea level.</small>					
KIT NO.: AGAGC8PNS01B		(SUPERSEDES: KGAPN43012SP, KGBPN4401VSP, KGCPN4401VSP, NAHB01001NG, AGAGC8PNS01A)		FUEL USED: NATURAL GAS	
APPLIANCE MODELS	USA % DERATE PER 1000 FT.	CANADA % DERATE FOR 2000-4500 FT.	NATURAL GAS PRESSURE		IN. W.C. (PO C.E.)
			Max. Inlet Gas Pressure (Press. Max. D'Admission De Gaz)		13.6
			Min. Inlet Gas Pressure (Press. Min. D'Admission De Gaz)		4.5
			(For Purpose of Input Adjustment) (Pour L'Adjustment D'Entree)		
58CV, 58CT, 58T(N/P), 31(2/4/5), 82(0/1)T, 88(0/1)T, PG8(M/J)V, PG80V, (F/G)8MT, (F/G)8MV, (F/G/N)80CTL, (F/G/N)80V	4%	10%	ALTITUDE		
			Manifold Pressure 0-2,000 ft. (0 - 610 m)		High Heat 3.2 - 3.8 797 - 946 Low Heat 1.4 - 1.8 349 - 448
			Pression Tubulure 2,000 - 10,000 ft. (610 - 3050 m)		
			Refer to Installation Manual Respecter les Instruction D'Installation		



347789-204 REV.-

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Fig. 6 – Conversion Kit Rating Plate

Table 4 – Orifice Size* and Manifold Pressure (in. w.c.) for Gas Input Rate for Single Stage Gas Valve
 (Tabulated data based on 22,000 BTU/h per burner, derated 4 percent for each 1000 ft. (305 M) above sea level)

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE AT ALTITUDE (BTU/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure
U.S.A.	0 to 2000 (0 to 610)	900	42	3.5	42	3.6	42	3.7	41	3.5
		925	42	3.3	42	3.4	42	3.5	42	3.7
		950	43	3.8	42	3.3	42	3.4	42	3.5
		975	43	3.6	43	3.8	42	3.2	42	3.3
		1000	43	3.5	43	3.6	43	3.7	43	3.8
		1025	43	3.3	43	3.4	43	3.5	43	3.6
		1050	44	3.6	43	3.2	43	3.4	43	3.5
		1075	44	3.4	44	3.5	43	3.2	43	3.3
U.S.A.	2001 to 3000 (610 to 914)	1100	44	3.3	44	3.4	44	3.5	43	3.2
		800	42	3.4	42	3.5	42	3.6	42	3.7
		825	42	3.2	42	3.3	42	3.4	42	3.5
		850	43	3.7	43	3.8	42	3.2	42	3.3
		875	43	3.5	43	3.6	43	3.7	43	3.8
		900	43	3.3	43	3.4	43	3.5	43	3.6
		925	43	3.1	43	3.2	43	3.3	43	3.4
		950	43	2.9	43	3.0	43	3.1	43	3.2
U.S.A.	3001 to 4000 (914 to 1219)	975	43	2.8	43	2.9	43	3.0	43	3.1
		1000	43	2.6	43	2.7	43	2.8	43	2.9
		775	42	3.2	42	3.3	42	3.4	42	3.5
		800	43	3.6	43	3.8	42	3.2	42	3.3
		825	43	3.4	43	3.5	43	3.7	43	3.8
		850	43	3.2	43	3.3	43	3.4	43	3.6
		875	43	3.0	43	3.1	43	3.3	43	3.4
		900	43	2.9	43	3.0	43	3.1	43	3.2
U.S.A.		925	43	2.7	43	2.8	43	2.9	43	3.0
		950	43	2.6	43	2.7	43	2.8	43	2.8

Table 4 – Orifice Size* and Manifold Pressure (in. w.c.) for Gas Input Rate for Single Stage Gas Valve
 (Tabulated data based on 22,000 BTUh per burner, derated 4 percent for each 1000 ft. (305 M) above sea level) (Continued)

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE AT ALTITUDE (BTU/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure
U.S.A.	4001 to 5000 (1219 to 1524)	750	43	3.6	43	3.8	42	3.2	42	3.3
		775	43	3.4	43	3.5	43	3.6	43	3.8
		800	43	3.2	43	3.3	43	3.4	43	3.5
		825	43	3.0	43	3.1	43	3.2	43	3.3
		850	43	2.8	43	2.9	43	3.0	43	3.1
		875	43	2.7	43	2.8	43	2.9	43	2.9
		900	43	2.5	43	2.6	43	2.7	43	2.8
		925	43	2.4	43	2.5	43	2.6	43	2.6
U.S.A.	5001 to 6000 (1524 to 1829)	725	43	3.4	43	3.5	43	3.6	43	3.7
		750	43	3.2	43	3.3	43	3.4	43	3.5
		775	43	3.0	43	3.1	43	3.2	43	3.3
		800	43	2.8	43	2.9	43	3.0	43	3.1
		825	43	2.6	43	2.7	43	2.8	43	2.9
		850	43	2.5	43	2.5	43	2.6	43	2.7
		875	43	2.3	43	2.4	43	2.5	43	2.6
		900	43	2.2	43	2.3	43	2.3	43	2.4
U.S.A.	6001 to 7000 (1829 to 2134)	675	43	3.4	43	3.5	43	3.6	43	3.7
		700	43	3.1	43	3.3	43	3.4	43	3.5
		725	43	2.9	43	3.0	43	3.1	43	3.2
		750	43	2.7	43	2.8	43	2.9	43	3.0
		775	43	2.6	43	2.7	43	2.7	43	2.8
		800	43	2.4	43	2.5	43	2.6	43	2.7
		825	43	2.3	43	2.3	43	2.4	43	2.5
		850	43	2.1	43	2.2	43	2.3	43	2.4
U.S.A.	7001 to 8000 (2134 to 2438)	650	43	3.1	43	3.2	43	3.4	43	3.5
		675	43	2.9	43	3.0	43	3.1	43	3.2
		700	43	2.7	43	2.8	43	2.9	43	3.0
		725	43	2.5	43	2.6	43	2.7	43	2.8
		750	43	2.4	43	2.4	43	2.5	43	2.6
		775	43	2.2	43	2.3	43	2.4	43	2.4
		800	43	2.1	43	2.1	43	2.2	43	2.3
		825	48	3.7	43	2.0	43	2.1	43	2.2
U.S.A.	8001 to 9000 (2438 to 2743)	625	43	2.9	43	3.0	43	3.1	43	3.2
		650	43	2.7	43	2.8	43	2.9	43	3.0
		675	43	2.5	43	2.6	43	2.7	43	2.8
		700	43	2.3	43	2.4	43	2.5	43	2.6
		725	43	2.2	43	2.2	43	2.3	43	2.4
		750	43	2.0	43	2.1	43	2.2	43	2.2
U.S.A.	9001 to 10,000 (2743 to 3048)	600	43	2.7	43	2.8	43	2.9	43	3.0
		625	43	2.5	43	2.6	43	2.6	43	2.7
		650	43	2.3	43	2.4	43	2.4	43	2.5
		675	43	2.1	43	2.2	43	2.3	43	2.3
		700	48	3.7	43	2.0	43	2.1	43	2.2
		725	48	3.5	48	3.6	48	3.7	43	2.0
		775	48	3.6	48	3.7	43	2.0	43	2.1

* Orifice number 43 is factory installed.

Table 5 – Orifice Size and Manifold Pressure (in.w.c.) for Gas Input Rate for Two Stage Gas Valve
(Tabulated Data Based on 22,000 BTUH High-Heat/14,500 BTUH for Low-Heat per Burner, Derated 4 Percent for Each 1000 Ft. (305 M)
Above Sea Level)

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE (BTUH/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low
USA	0 to 2000 (0 to 610)	900	42	3.5/1.5	42	3.6/1.6	42	3.7/1.6	41	3.5/1.5
		925	42	3.3/1.4	42	3.4/1.5	42	3.5/1.5	42	3.7/1.6
		950	43	3.8/1.7	42	3.3/1.4	42	3.4/1.5	42	3.5/1.5
		975	43	3.6/1.6	43	3.8/1.6	42	3.2/1.4	42	3.3/1.4
		1000	43	3.5/1.5	43	3.6/1.6	43	3.7/1.6	43	3.8/1.7
		1025	43	3.3/1.4	43	3.4/1.5	43	3.5/1.5	43	3.6/1.6
		1050	44	3.6/1.6	43	3.2/1.4	43	3.4/1.5	43	3.5/1.5
		1075	44	3.4/1.5	44	3.5/1.5	43	3.2/1.4	43	3.3/1.4
USA	2001 to 3000 (610 to 914)	1100	44	3.3/1.4	44	3.4/1.5	44	3.5/1.5	43	3.2/1.4
		800	42	3.4/1.5	42	3.5/1.5	42	3.6/1.6	42	3.7/1.6
		825	42	3.2/1.4	42	3.3/1.4	42	3.4/1.5	42	3.5/1.5
		850	43	3.7/1.6	43	3.8/1.6	42	3.2/1.4	42	3.3/1.4
		875	43	3.5/1.5	43	3.6/1.6	43	3.7/1.6	43	3.8/1.7
		900	43	3.3/1.4	43	3.4/1.5	43	3.5/1.5	43	3.6/1.6
		925	44	3.5/1.5	43	3.2/1.4	43	3.3/1.4	43	3.4/1.5
		950	44	3.4/1.5	44	3.5/1.5	44	3.6/1.6	43	3.2/1.4
USA	3001 to 4000 (914 to 1219)	975	44	3.2/1.4	44	3.3/1.4	44	3.4/1.5	44	3.5/1.5
		1000	45	3.7/1.6	45	3.8/1.7	44	3.2/1.4	44	3.4/1.5
		775	42	3.2/1.4	42	3.3/1.4	42	3.4/1.5	42	3.5/1.5
		800	43	3.6/1.6	43	3.8/1.6	42	3.2/1.4	42	3.3/1.4
		825	43	3.4/1.5	43	3.5/1.5	43	3.7/1.6	43	3.8/1.6
		850	43	3.2/1.4	43	3.3/1.4	43	3.4/1.5	43	3.6/1.5
		875	44	3.5/1.5	44	3.6/1.6	43	3.3/1.4	43	3.4/1.5
		900	44	3.3/1.4	44	3.4/1.5	44	3.5/1.5	43	3.2/1.4
USA	4001 to 5000 (1219 to 1524)	925	45	3.8/1.6	44	3.2/1.4	44	3.3/1.5	44	3.4/1.5
		950	46	3.8/1.6	45	3.7/1.6	45	3.8/1.7	44	3.3/1.4
		750	43	3.6/1.6	43	3.8/1.6	42	3.2/1.4	42	3.3/1.4
		775	43	3.4/1.5	43	3.5/1.5	43	3.6/1.6	43	3.8/1.6
		800	43	3.2/1.4	43	3.3/1.4	43	3.4/1.5	43	3.5/1.5
		825	44	3.4/1.5	44	3.6/1.5	43	3.2/1.4	43	3.3/1.4
		850	44	3.2/1.4	44	3.4/1.5	44	3.5/1.5	44	3.6/1.6
		875	45	3.7/1.6	45	3.8/1.7	44	3.3/1.4	44	3.4/1.5
USA	5001 to 6000 (1524 to 1829)	900	46	3.7/1.6	46	3.8/1.7	45	3.7/1.6	44	3.2/1.4
		925	46	3.5/1.5	46	3.6/1.6	46	3.7/1.6	46	3.8/1.7
		725	43	3.4/1.5	43	3.5/1.5	43	3.6/1.6	43	3.7/1.6
		750	43	3.2/1.4	43	3.3/1.4	43	3.4/1.5	43	3.5/1.5
		775	44	3.4/1.5	44	3.5/1.5	43	3.2/1.4	43	3.3/1.4
		800	44	3.2/1.4	44	3.3/1.4	44	3.4/1.5	44	3.5/1.5
		825	46	3.8/1.7	45	3.8/1.6	44	3.2/1.4	44	3.3/1.4
		850	46	3.6/1.6	46	3.7/1.6	46	3.8/1.7	45	3.8/1.6
USA	6001 to 7000 (1829 to 2134)	875	47	3.8/1.7	46	3.5/1.5	46	3.6/1.6	46	3.7/1.6
		900	47	3.6/1.6	47	3.8/1.6	46	3.4/1.5	46	3.5/1.5
		675	43	3.4/1.5	43	3.5/1.5	43	3.6/1.6	43	3.7/1.6
		700	44	3.6/1.6	43	3.3/1.4	43	3.4/1.5	43	3.5/1.5
		725	44	3.4/1.5	44	3.5/1.5	44	3.6/1.6	43	3.2/1.4
		750	45	3.8/1.7	44	3.3/1.4	44	3.4/1.5	44	3.5/1.5
		775	46	3.7/1.6	45	3.7/1.6	45	3.8/1.7	44	3.2/1.4
		800	46	3.5/1.5	46	3.6/1.6	46	3.8/1.6	45	3.7/1.6
USA	7001 to 8000 (2134 to 2438)	825	47	3.7/1.6	46	3.4/1.5	46	3.5/1.5	46	3.6/1.6
		850	47	3.5/1.5	47	3.6/1.6	47	3.8/1.6	46	3.4/1.5
		650	44	3.6/1.6	43	3.2/1.4	43	3.4/1.5	43	3.5/1.5
		675	44	3.3/1.5	44	3.5/1.5	44	3.6/1.6	43	3.2/1.4
		700	45	3.8/1.6	44	3.2/1.4	44	3.3/1.4	44	3.4/1.5
		725	46	3.7/1.6	46	3.8/1.7	45	3.7/1.6	44	3.2/1.4
		750	46	3.4/1.5	46	3.6/1.5	46	3.7/1.6	46	3.8/1.6
		775	47	3.6/1.6	47	3.8/1.6	46	3.4/1.5	46	3.6/1.5
USA		800	47	3.4/1.5	47	3.5/1.5	47	3.7/1.6	47	3.8/1.6
		825	48	3.7/1.6	48	3.8/1.6	47	3.4/1.5	47	3.6/1.5

Table 5 – Orifice Size and Manifold Pressure (in.w.c.) for Gas Input Rate for Two Stage Gas Valve
(Tabulated Data Based on 22,000 BTU/h High-Heat/14,500 BTU/h for Low-Heat per Burner, Derated 4 Percent for Each 1000 Ft. (305 M)
Above Sea Level) (Continued)

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE (BTU/H/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low
USA	8001 to 9000 (2438 to 2743)	625	44	3.3/1.5	44	3.5/1.5	44	3.6/1.6	43	3.2/1.4
		650	45	3.7/1.6	44	3.2/1.4	44	3.3/1.4	44	3.4/1.5
		675	46	3.6/1.6	46	3.8/1.6	45	3.7/1.6	45	3.8/1.7
		700	47	3.8/1.7	46	3.5/1.5	46	3.6/1.6	46	3.7/1.6
		725	47	3.6/1.6	47	3.7/1.6	47	3.8/1.7	46	3.5/1.5
		750	48	3.8/1.7	47	3.5/1.5	47	3.6/1.6	47	3.7/1.6
USA	9001 to 10,000 2743 to 3048)	775	48	3.6/1.5	48	3.7/1.6	48	3.8/1.7	47	3.5/1.5
		600	45	3.7/1.6	45	3.8/1.7	44	3.3/1.4	44	3.4/1.5
		625	46	3.6/1.6	46	3.7/1.6	46	3.8/1.7	45	3.8/1.6
		650	47	3.8/1.6	46	3.4/1.5	46	3.6/1.5	46	3.7/1.6
		675	47	3.5/1.5	47	3.6/1.6	47	3.7/1.6	46	3.4/1.5
		700	48	3.7/1.6	48	3.8/1.7	47	3.5/1.5	47	3.6/1.6
		725	48	3.5/1.5	48	3.6/1.6	48	3.7/1.6	48	3.8/1.7

* Orifice number 43 are factory installed

Table 6 – Orifice Size* and Manifold Pressure (in. w.c.) for Gas Input Rate for Single Stage Gas Valve
(Tabulated data based on 21,000 BTU/h per burner, derated 4 percent for each 1000 ft. (305 M) above sea level)

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE AT ALTITUDE (BTU/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure	Orifice No.	Manifold Pressure
U.S.A.	0 to 2000 (0 to 610)	900	42	3.2	42	3.3	42	3.4	42	3.5
		925	43	3.7	43	3.8	42	3.2	42	3.3
		950	43	3.5	43	3.6	43	3.7	43	3.8
		975	43	3.3	43	3.4	43	3.5	43	3.7
		1000	44	3.6	43	3.3	43	3.4	43	3.5
		1025	44	3.4	44	3.6	43	3.2	43	3.3
		1050	44	3.3	44	3.4	44	3.5	43	3.2
		1075	45	3.8	44	3.2	44	3.3	44	3.4
U.S.A.	2001 to 3000 (610 to 914)	1100	46	3.8	45	3.7	44	3.2	44	3.3
		800	43	3.8	42	3.2	42	3.3	42	3.4
		825	43	3.5	43	3.7	43	3.8	42	3.2
		850	43	3.3	43	3.5	43	3.6	43	3.7
		875	43	3.2	43	3.3	43	3.4	43	3.5
		900	43	3.0	43	3.1	43	3.2	43	3.3
		925	43	2.8	43	2.9	43	3.0	43	3.1
		950	43	2.7	43	2.8	43	2.9	43	2.9
U.S.A.	3001 to 4000 (914 to 1219)	975	43	2.5	43	2.6	43	2.7	43	2.8
		1000	43	2.4	43	2.5	43	2.6	43	2.7
		775	43	3.5	43	3.7	43	3.8	42	3.2
		800	43	3.3	43	3.4	43	3.5	43	3.7
		825	43	3.1	43	3.2	43	3.3	43	3.4
		850	43	2.9	43	3.0	43	3.1	43	3.2
		875	43	2.8	43	2.9	43	3.0	43	3.1
		900	43	2.6	43	2.7	43	2.8	43	2.9
U.S.A.	4001 to 5000 (1219 to 1524)	925	43	2.5	43	2.6	43	2.7	43	2.7
		950	43	2.4	43	2.4	43	2.5	43	2.6
		750	43	3.3	43	3.4	43	3.5	43	3.6
		775	43	3.1	43	3.2	43	3.3	43	3.4
		800	43	2.9	43	3.0	43	3.1	43	3.2
		825	43	2.7	43	2.8	43	2.9	43	3.0
		850	43	2.6	43	2.7	43	2.8	43	2.8
		875	43	2.4	43	2.5	43	2.6	43	2.7
		900	43	2.3	43	2.4	43	2.5	43	2.5
		925	43	2.2	43	2.2	43	2.3	43	2.4

Table 6 – Orifice Size* and Manifold Pressure (in. w.c.) for Gas Input Rate for Single Stage Gas Valve
 (Tabulated data based on 21,000 BTU/h per burner, derated 4 percent for each 1000 ft. (305 M) above sea level) (Continued)

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE (BTU/H/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low
U.S.A.	5001 to 6000 (1524 to 1829)	725	43	3.1	43	3.2	43	3.3	43	3.4
		750	43	2.9	43	3.0	43	3.1	43	3.2
		775	43	2.7	43	2.8	43	2.9	43	3.0
		800	43	2.5	43	2.6	43	2.7	43	2.8
		825	43	2.4	43	2.5	43	2.5	43	2.6
		850	43	2.2	43	2.3	43	2.4	43	2.5
		875	43	2.1	43	2.2	43	2.3	43	2.3
U.S.A.	6001 to 7000 (1829 to 2134)	900	43	2.0	43	2.1	43	2.1	43	2.2
		675	43	3.1	43	3.2	43	3.3	43	3.4
		700	43	2.9	43	3.0	43	3.1	43	3.2
		725	43	2.7	43	2.8	43	2.9	43	2.9
		750	43	2.5	43	2.6	43	2.7	43	2.8
		775	43	2.3	43	2.4	43	2.5	43	2.6
		800	43	2.2	43	2.3	43	2.3	43	2.4
U.S.A.	7001 to 8000 (2134 to 2438)	825	43	2.1	43	2.1	43	2.2	43	2.3
		850	48	3.7	43	2.0	43	2.1	43	2.1
		650	43	2.9	43	3.0	43	3.1	43	3.2
		675	43	2.7	43	2.7	43	2.8	43	2.9
		700	43	2.5	43	2.6	43	2.6	43	2.7
		725	43	2.3	43	2.4	43	2.5	43	2.5
		750	43	2.1	43	2.2	43	2.3	43	2.4
U.S.A.	8001 to 9000 (2438 to 2743)	775	43	2.0	43	2.1	43	2.2	43	2.2
		800	48	3.6	48	3.7	43	2.0	43	2.1
		825	48	3.3	48	3.5	48	3.6	48	3.7
		625	43	2.7	43	2.7	43	2.8	43	2.9
		650	43	2.5	43	2.5	43	2.6	43	2.7
		675	43	2.3	43	2.4	43	2.4	43	2.5
U.S.A.	9001 to 10,000 (2743 to 3048)	700	43	2.1	43	2.2	43	2.3	43	2.3
		725	48	3.7	43	2.0	43	2.1	43	2.2
		750	48	3.5	48	3.6	48	3.7	43	2.0
		600	43	2.4	43	2.5	43	2.6	43	2.7
		625	43	2.3	43	2.3	43	2.4	43	2.5
		650	43	2.1	43	2.2	43	2.2	43	2.3
		675	48	3.6	48	3.8	43	2.1	43	2.1
U.S.A.		700	48	3.4	48	3.5	48	3.6	48	3.7
		725	49	3.7	49	3.8	48	3.4	48	3.5
		750	49	3.8	48	3.4	48	3.5	48	3.6

* Orifice number 43 is factory installed.

Table 7 – Orifice Size and Manifold Pressure (in.w.c.) for Gas Input Rate for Two Stage Gas Valve
 (Tabulated Data Based on 21,000 BTU/h High-Heat/14,500 BTU/h for Low-Heat Per Burner, Derated 4 Percent for Each 1000 Ft. (305 M) Above Sea level)

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE (BTU/H/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low
USA	0 to 2000 (0 to 610)	900	42	3.2/1.5	42	3.3/1.6	42	3.4/1.6	42	3.5/1.7
		925	43	3.7/1.8	43	3.8/1.8	42	3.2/1.5	42	3.3/1.6
		950	43	3.5/1.7	43	3.6/1.7	43	3.7/1.8	43	3.8/1.8
		975	43	3.3/1.6	43	3.4/1.6	43	3.5/1.7	43	3.7/1.7
		1000	44	3.6/1.7	43	3.3/1.6	43	3.4/1.6	43	3.5/1.7
		1025	44	3.4/1.6	44	3.6/1.7	43	3.2/1.5	43	3.3/1.6
		1050	44	3.3/1.6	44	3.4/1.6	44	3.5/1.7	43	3.2/1.5
		1075	45	3.8/1.8	44	3.2/1.5	44	3.3/1.6	44	3.4/1.6
USA		1100	46	3.8/1.8	45	3.7/1.8	44	3.2/1.5	44	3.3/1.6

Table 7 – Orifice Size and Manifold Pressure (in.w.c.) for Gas Input Rate for Two Stage Gas Valve
(Tabulated Data Based on 21,000 BTU/h High-Heat/14,500 BTU/h for Low-Heat Per Burner, Derated 4 Percent for Each 1000 Ft. (305 M)
Above Sea level) (Continued)

ALTITUDE RANGE FT. (M)		AVG. GAS HEAT VALUE (BTU/H/CU FT.)	SPECIFIC GRAVITY OF NATURAL GAS							
			0.58		0.60		0.62		0.64	
			Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low	Orifice No.	Manifold Pressure High/Low
USA	2001 to 3000 (610 to 914)	800	43	3.8/1.8	42	3.2/1.5	42	3.3/1.6	42	3.4/1.6
		825	43	3.5/1.7	43	3.7/1.7	43	3.8/1.8	42	3.2/1.5
		850	43	3.3/1.6	43	3.5/1.6	43	3.6/1.7	43	3.7/1.8
		875	43	3.2/1.5	43	3.3/1.6	43	3.4/1.6	43	3.5/1.7
		900	44	3.4/1.6	44	3.5/1.7	43	3.2/1.5	43	3.3/1.6
		925	44	3.2/1.5	44	3.3/1.6	44	3.5/1.6	44	3.6/1.7
		950	45	3.7/1.8	45	3.8/1.8	44	3.3/1.6	44	3.4/1.6
		975	46	3.7/1.8	46	3.8/1.8	45	3.8/1.8	44	3.2/1.5
		1000	46	3.5/1.7	46	3.6/1.7	46	3.8/1.8	45	3.7/1.8
USA	3001 to 4000 (914 to 1219)	775	43	3.5/1.7	43	3.7/1.7	43	3.8/1.8	42	3.2/1.5
		800	43	3.3/1.6	43	3.4/1.6	43	3.5/1.7	43	3.7/1.7
		825	44	3.6/1.7	43	3.2/1.5	43	3.3/1.6	43	3.4/1.6
		850	44	3.4/1.6	44	3.5/1.7	44	3.6/1.7	43	3.2/1.5
		875	45	3.8/1.8	44	3.3/1.6	44	3.4/1.6	44	3.5/1.7
		900	46	3.8/1.8	45	3.8/1.8	44	3.2/1.5	44	3.3/1.6
		925	46	3.6/1.7	46	3.7/1.8	45	3.7/1.8	45	3.8/1.8
USA	4001 to 5000 (1219 to 1524)	950	46	3.4/1.6	46	3.5/1.7	46	3.7/1.7	46	3.8/1.8
		750	43	3.3/1.6	43	3.4/1.6	43	3.5/1.7	43	3.6/1.7
		775	44	3.6/1.7	43	3.2/1.5	43	3.3/1.6	43	3.4/1.6
		800	44	3.3/1.6	44	3.4/1.6	44	3.6/1.7	43	3.2/1.5
		825	45	3.8/1.8	44	3.2/1.5	44	3.4/1.6	44	3.5/1.6
		850	46	3.8/1.8	45	3.7/1.8	45	3.8/1.8	44	3.3/1.6
		875	46	3.5/1.7	46	3.7/1.7	46	3.8/1.8	45	3.7/1.8
USA	5001 to 6000 (1524 to 1829)	900	47	3.8/1.8	46	3.5/1.7	46	3.6/1.7	46	3.7/1.8
		925	47	3.6/1.7	47	3.7/1.8	47	3.8/1.8	46	3.5/1.7
		725	44	3.5/1.7	43	3.2/1.5	43	3.3/1.6	43	3.4/1.6
		750	44	3.3/1.6	44	3.4/1.6	44	3.5/1.7	43	3.2/1.5
		775	45	3.7/1.8	44	3.2/1.5	44	3.3/1.6	44	3.4/1.6
		800	46	3.7/1.8	46	3.8/1.8	45	3.8/1.8	44	3.2/1.5
		825	46	3.5/1.7	46	3.6/1.7	46	3.7/1.8	46	3.8/1.8
USA	6001 to 7000 (1829 to 2134)	850	47	3.7/1.8	47	3.8/1.8	46	3.5/1.7	46	3.6/1.7
		875	47	3.5/1.7	47	3.6/1.7	47	3.7/1.8	46	3.4/1.6
		900	48	3.8/1.8	47	3.4/1.6	47	3.5/1.7	47	3.7/1.7
		675	44	3.5/1.7	43	3.2/1.5	43	3.3/1.6	43	3.4/1.6
		700	44	3.3/1.6	44	3.4/1.6	44	3.5/1.7	43	3.2/1.5
		725	45	3.7/1.8	45	3.8/1.8	44	3.3/1.6	44	3.4/1.6
		750	46	3.6/1.7	46	3.8/1.8	45	3.7/1.8	45	3.8/1.8
USA	7001 to 8000 (2134 to 2438)	775	46	3.4/1.6	46	3.5/1.7	46	3.6/1.7	46	3.8/1.8
		800	47	3.6/1.7	47	3.8/1.8	46	3.4/1.6	46	3.5/1.7
		825	47	3.4/1.6	47	3.5/1.7	47	3.6/1.7	47	3.8/1.8
		850	48	3.7/1.7	48	3.8/1.8	47	3.4/1.6	47	3.5/1.7
		650	44	3.3/1.6	44	3.4/1.6	44	3.5/1.7	43	3.2/1.5
		675	45	3.7/1.8	45	3.8/1.8	44	3.3/1.6	44	3.4/1.6
		700	46	3.6/1.7	46	3.7/1.8	46	3.8/1.8	45	3.8/1.8
USA	8001 to 9000 (2438 to 2743)	725	47	3.8/1.8	46	3.5/1.7	46	3.6/1.7	46	3.7/1.8
		750	47	3.5/1.7	47	3.7/1.8	47	3.8/1.8	46	3.5/1.6
		775	48	3.8/1.8	47	3.4/1.6	47	3.6/1.7	47	3.7/1.7
		800	48	3.6/1.7	48	3.7/1.8	48	3.8/1.8	47	3.4/1.6
		825	48	3.3/1.6	48	3.5/1.6	48	3.6/1.7	48	3.7/1.8
		625	45	3.7/1.8	45	3.8/1.8	44	3.3/1.6	44	3.4/1.6
		650	46	3.6/1.7	46	3.7/1.8	46	3.8/1.8	45	3.8/1.8
USA	9001 to 10,000 (2743 to 3048)	675	47	3.8/1.8	46	3.4/1.6	46	3.5/1.7	46	3.7/1.7
		700	47	3.5/1.7	47	3.6/1.7	47	3.7/1.8	46	3.4/1.6
		725	48	3.7/1.8	48	3.8/1.8	47	3.5/1.7	47	3.6/1.7
		750	48	3.5/1.7	48	3.6/1.7	48	3.7/1.8	48	3.8/1.8
		775	49	3.8/1.8	48	3.4/1.6	48	3.5/1.7	48	3.6/1.7
		600	46	3.6/1.7	46	3.7/1.8	46	3.8/1.8	45	3.7/1.8
USA		625	47	3.7/1.8	47	3.8/1.8	46	3.5/1.7	46	3.6/1.7
		650	47	3.4/1.6	47	3.6/1.7	47	3.7/1.8	47	3.8/1.8
		675	48	3.6/1.7	48	3.8/1.8	47	3.4/1.6	47	3.5/1.7
		700	48	3.4/1.6	48	3.5/1.7	48	3.6/1.7	48	3.7/1.8
		725	49	3.7/1.8	49	3.8/1.8	48	3.4/1.6	48	3.5/1.7

INSTALL ORIFICES

1. Install main burner orifices. Do not use PTFE thread-seal tape. Finger-tighten orifices at least one full turn to prevent cross-threading, then tighten with wrench.
2. There are enough orifices in each kit for largest furnace. Discard extra orifices.

NOTE: DO NOT reinstall the manifold at this time.

REMOVE MIXER SCREWS FROM THE BURNERS

Each burner contains a mixer screw that must be removed. Refer to [Fig. 7](#) for the mixer screw location

3. Remove the mixer screws from the burners.

NOTE: It is not necessary to plug the hole in the burner when the mixer screws are removed.

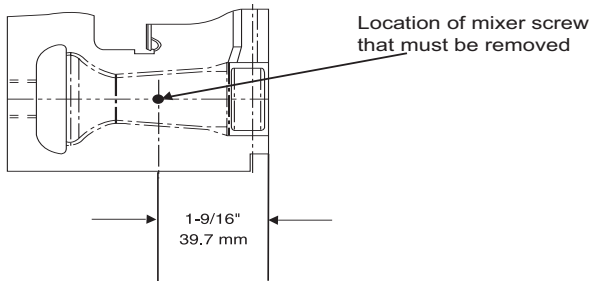


Fig. 7 – Mixer Screw Location

A11511

REINSTALL BURNER ASSEMBLY

To reinstall burner assembly:

1. Attach flame sensor to burner assembly.
2. Install HSI and bracket to burner assembly.
3. Insert one-piece burner in slot on sides of burner box and slide burner back in place.
4. Reattach HSI wires to HSI.
5. Verify igniter to burner alignment.
6. For igniters, see [Fig. 8](#) and [Fig. 9](#).
7. Re-attach Flame sensor wire to Flame Sensor.

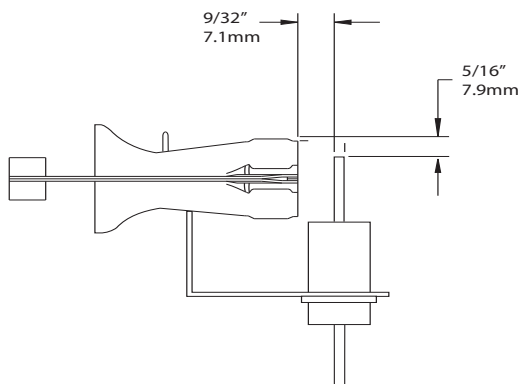


Fig. 8 – Igniter Position - Side View

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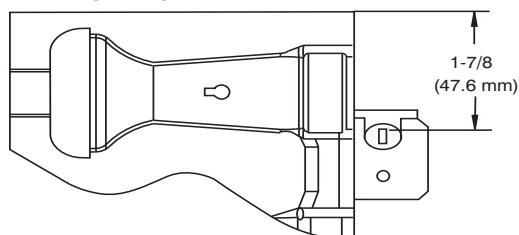


Fig. 9 – Igniter Position - Top View

A05026

CONVERT GAS VALVE



CAUTION

UNIT DAMAGE HAZARD

Failure to follow this caution may result in unit damage

The gas valve must be converted and pre-adjusted before operating on natural gas. If not converted and pre-adjusted, sooting and corrosion will occur leading to early heat exchanger failure.



WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury, death or property damage.

Gas supply **MUST** be shut off before disconnecting electrical power and proceeding with conversion.



WARNING

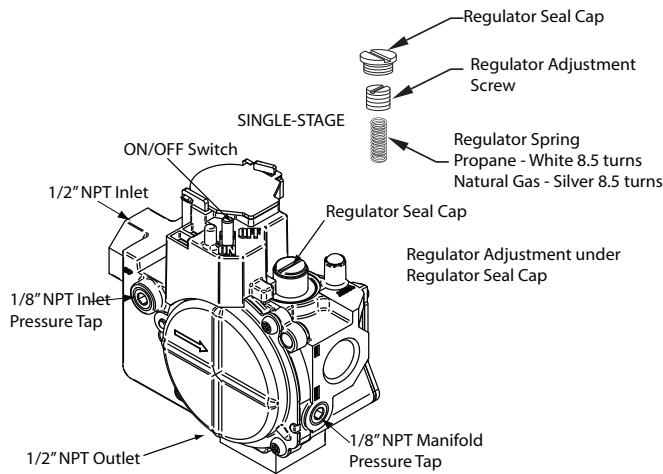
ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

Failure to follow this warning could result in personal injury, death or property damage.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

Single Stage Gas Valve

1. Refer to [Fig. 10](#).
2. Be sure gas and electrical supplies to furnace are off.
3. Remove caps that conceal adjustment screws for the gas valve regulators. (See [Fig. 10](#))
4. Remove the regulator adjustment screw.
5. Remove the propane regulator springs (white).
6. Install the natural gas regulator springs (silver).
7. Install the regulator adjustment screws.
8. For 36G or 36J valve, turn the adjusting screw clockwise (in) 8.5 full turns. This will increase the manifold pressure closer to the natural gas set point. (See [Fig. 10](#)) For 36E valves, turn the adjusting screw clockwise (in) 10 full turns. This will increase the manifold pressure closer to the natural gas set point.
9. Do not install regulator seal caps at this time.

SINGLE STAGE GAS VALVE 36G & 36J

Remove the propane gas regulator spring (white)

Install the natural regulator spring (silver)

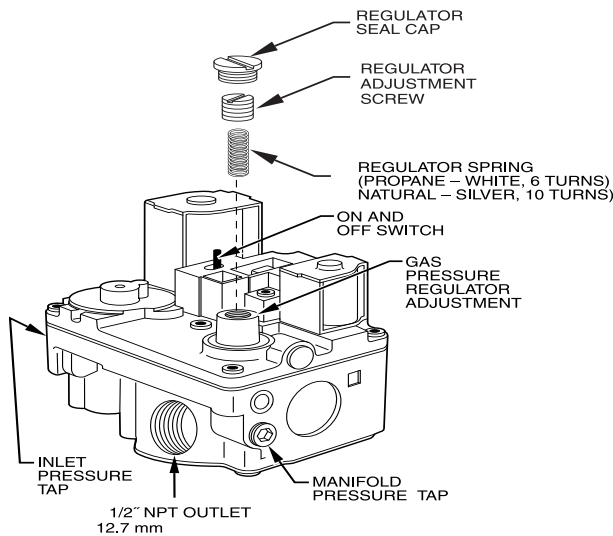
SINGLE STAGE GAS VALVE 36E

Fig. 10 – Single Stage Gas Valve

Two-Stage Gas Valve

NOTE: For older model two-stage furnaces with a Series E gas valve (see Fig. 11), they DO NOT need to have the regulator springs replaced in the gas valve, but the regulators in the gas valve must be pre-adjusted for natural gas applications.

For E valves see Fig. 11.

1. Be sure gas and electrical supplies to furnace are off.
2. Remove caps that conceal adjustment screws for high- and low-heat stage gas valve regulators. See Fig. 11.
3. Turn low-heat stage adjusting screw (3/32-in. [2 mm] hex Allen screw) clockwise (in) 1 full turn. This will increase the manifold pressure closer to the natural gas low-heat set point.
4. Turn high-heat stage adjusting screw (3/32-in. [2 mm] hex Allen screw) clockwise (in) 2 full turns. This will increase the manifold pressure closer to the natural gas high-heat set point.
5. Do not install regulator seal caps at this time.

For all other gas valves see Fig. 11.

1. Be sure main gas and electrical supplies are turned OFF.
2. Remove both regulator seal caps. (See Fig. 11)
3. Remove both regulator adjustment screws.

4. Remove both propane gas regulator springs (white).
5. Install natural gas regulator springs (silver).
6. Install regulator adjustment screws.
7. Turn low-heat stage adjusting screw clockwise (inwards) 9.5 turns. This will increase the manifold pressure closer to the low-heat set point.
8. Turn high-heat stage adjusting screw clockwise (inwards) 13.5 turns. This will increase the manifold pressure closer to the high-heat set point.
9. Do not install regulator seal caps at this time.

NOTE: For the two-stage furnaces (not including the older series E valves, see second rendering in Fig. 11), they MUST have both regulator springs replaced and the gas valve MUST be pre-adjusted.

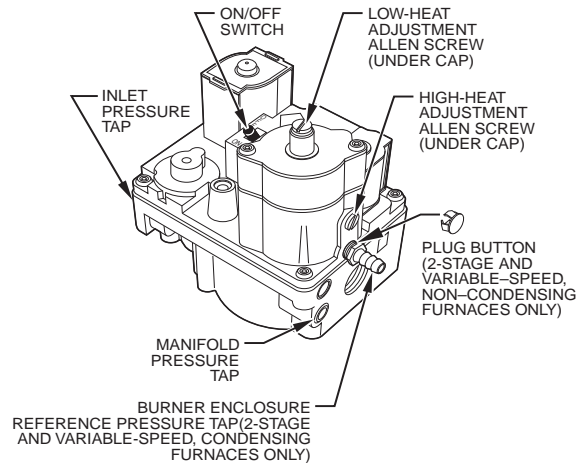
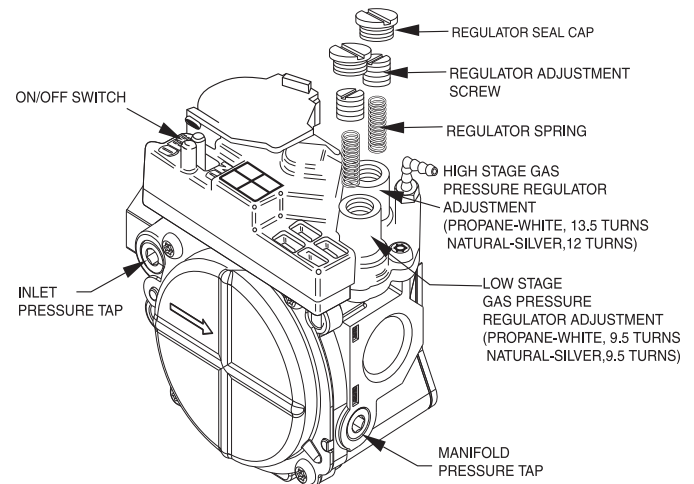
TWO STAGE E GAS VALVE**TWO STAGE GAS VALVE**

Fig. 11 – Two Stage Gas Valve

INSTALL MANIFOLD

1. Align the orifices in the manifold assembly with the support rings on the end of the burner.
2. Insert the orifices in the support rings of the burners. Manifold mounting tabs should fit flush against the burner box.

NOTE: If manifold does not fit flush against the burner box, the burners are not fully seated forward. Remove the manifold and check burner positioning in the burner box assembly.

3. Attach the green/yellow wire and ground terminal to one of the manifold mounting screws.
4. Install the remaining manifold mounting screws.
5. Connect the wires to both rollout switches.

- Connect the connector harness to gas valve.

NOTE: Use only natural gas resistant pipe dope. Do not use PTFE thread-seal tape.

- Insert the gas pipe through the grommet in the casing. Apply a thin layer of pipe dope to the threads of the pipe and thread the pipe into the gas valve.

NOTE: Use a back-up wrench on the gas valve to prevent the valve from rotating on the manifold or damaging the mounting to the burner box.

- With a back-up wrench on the inlet boss of the gas valve, finish tightening the gas pipe to the gas valve.
- Turn gas on at electric switch on gas valve.

REMOVE LOW GAS PRESSURE SWITCH

- Be sure main gas and electric supplies to furnace are off.
- Remove low-gas pressure switch, brass street 90° elbow and 2-in. (50.8 mm) brass nipple from the gas valve inlet pressure tap. (See Fig. 12)

NOTE: DO NOT use PTFE thread-seal tape.

- Apply pipe dope sparingly to the 1/8-in. (3 mm) NPT pipe plug and install the 1/8-in. (3 mm) tapped inlet pressure tap opening in the gas valve. DO NOT over-tighten. Check for gas leaks after gas supply has been turned on.
- Check all fittings for leaks after gas supply has been turned on.

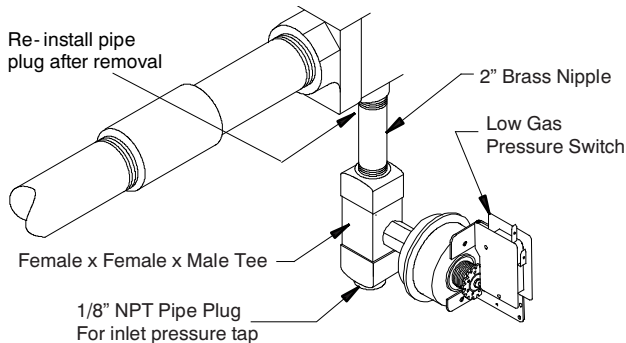


Fig. 12 – 80% Low Gas Pressure Switch

L13F014

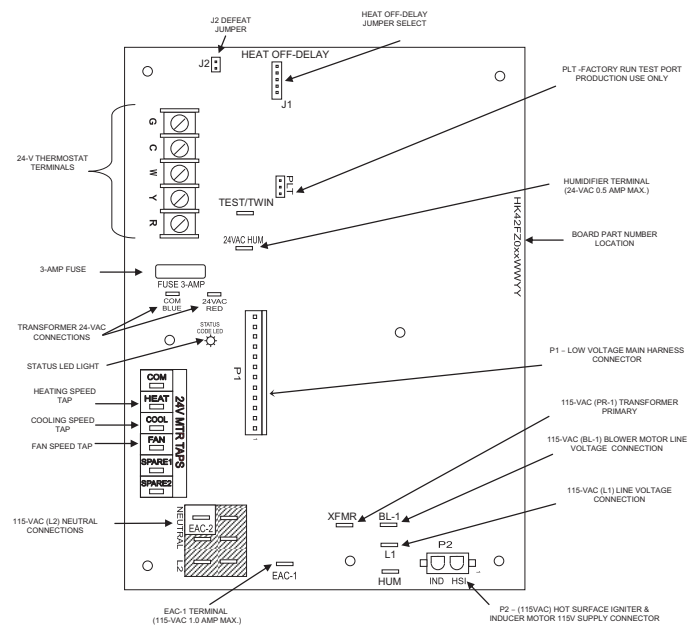
! WARNING

FIRE AND EXPLOSION HAZARD

Failure to follow this warning could result in personal injury and/or death.

NEVER test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury or loss of life.

Single Stage Gas Valve



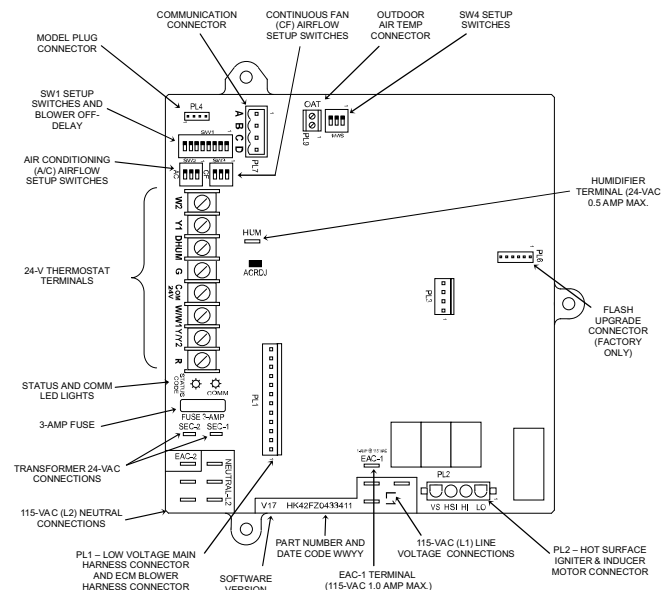
Representative drawing only, some models may vary in appearance. A190022

Fig. 13 – Example of Single Stage Furnace Control

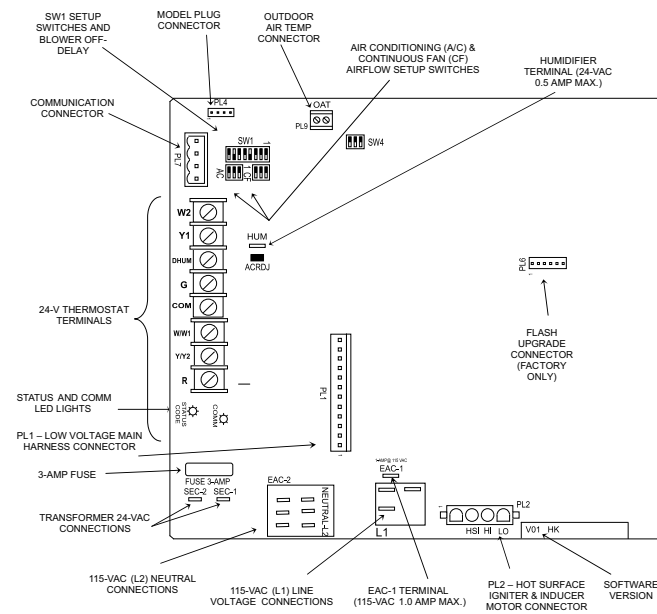
Check Single Stage Inlet Gas Pressure

- Jumper R-W thermostat connections on control.
- When main burners ignite, confirm inlet gas pressure is between 4.5-in. w.c. and 13.6-in. w.c.
- Remove jumper across R-W thermostat connections to terminate call for heat.
- Turn furnace gas valve switch to OFF position.
- Turn gas supply manual shutoff valve to OFF position.
- Turn off furnace power supply.
- Remove manometer and on some models remove pressure tap fitting.
- Apply pipe dope sparingly to end of inlet gas pipe plug and install into unused end of 1/8-in. (3 mm) tee. Use a small back-up wrench on tee when tightening gas inlet pipe plug. (See Fig. 10)

Variable Speed Blower, Two-Stage Gas Valve



Representative drawing only, some models may vary in appearance. A210132



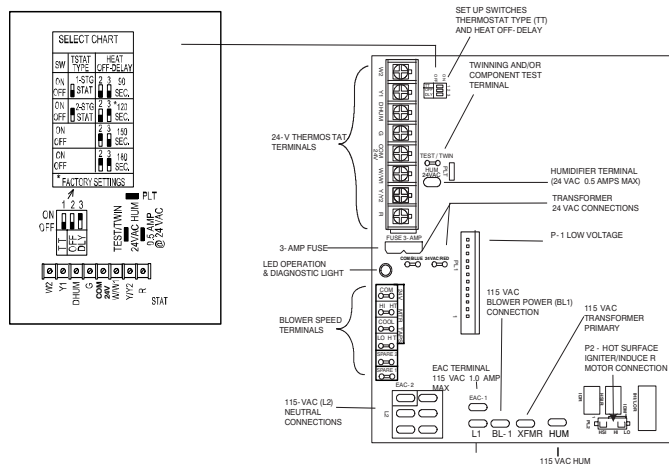
Representative drawing only, some models may vary in appearance. A190154

Fig. 14 – Example of Variable Speed Furnace Control for ECM Blower Motor

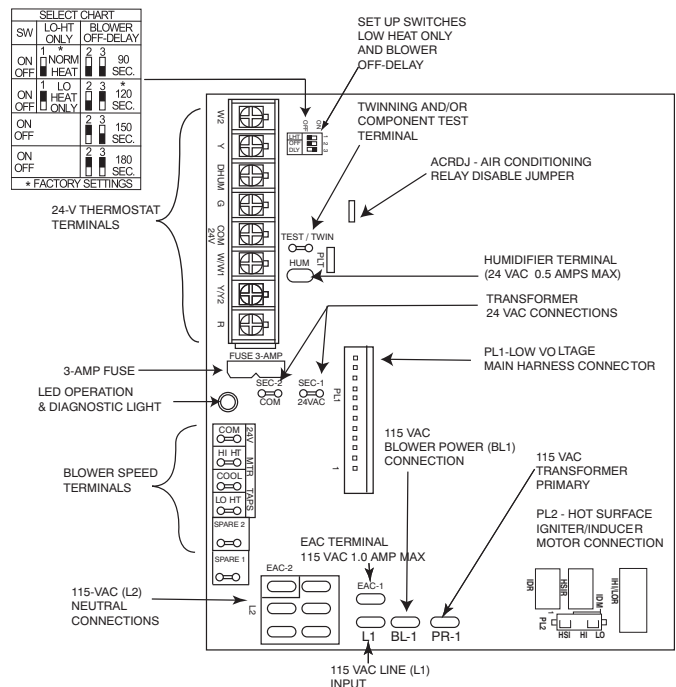
Check Two-Stage ECM Inlet Gas Pressure

1. Turn Setup Switch SW1-2 on furnace control ON (See Fig. 14).
2. Jumper R-W/W1 and R-W2 thermostat connections on control.
3. When main burners ignite, confirm inlet gas pressure is between 4.5-in. w.c. and 13.6-in. w.c.
4. Remove jumper across R-W/W1 and R-W2 thermostat connections to terminate call for heat.
5. Turn furnace gas valve switch to OFF position.
6. Turn gas supply manual shutoff valve to OFF position.
7. Turn off furnace power supply.
8. Remove manometer and on some models remove pressure tap fitting.
9. Apply pipe dope sparingly to the end of inlet gas pipe plug and install into unused end of 1/8-in. (3 mm) tee. Use a small back-up wrench on tee when tightening gas inlet pipe plug. (See Fig. 11)

Fixed-Speed Blower (FCT), Two-Stage Gas Valve



Representative drawing only, some models may vary in appearance. A210133



Representative drawing only, some models may vary in appearance. A11470

Fig. 15 – Example of Two-Stage Furnace Control

Check Two-Stage FCT Inlet Gas Pressure

1. Turn Setup Switch SW1 (LHT or TT) on furnace control ON (see Fig. 15).
2. Jumper R-W/W1 and R-W2 thermostat connections on control.
3. When main burners ignite, confirm inlet gas pressure is between 4.5-in. w.c. and 13.6-in. w.c.
4. Remove jumper across R-W/W1 and R-W2 thermostat connections to terminate call for heat.
5. Turn furnace gas valve switch to OFF position.
6. Turn gas supply manual shutoff valve to OFF position.
7. Turn off furnace power supply.
8. Remove manometer and on some models remove pressure tap fitting.
9. Apply pipe dope sparingly to the end of inlet gas pipe plug and install into unused end of 1/8-in. (3 mm) tee. Use a small back-up wrench on tee when tightening gas inlet pipe plug. (See Fig. 11)

CHECK FURNACE AND MAKE ADJUSTMENTS

! WARNING

FIRE AND EXPLOSION HAZARD

Failure to follow this warning could result in personal injury and/or death.

NEVER test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury or loss of life.

! WARNING

FIRE, EXPLOSION, ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury, death or property damage.

Gas supply **MUST** be shut off before disconnecting electrical power and proceeding with conversion.

Connect Manometer

1. Be sure main gas and electric supplies to furnace are off.
2. Remove 1/8-in. (3 mm) pipe plug from manifold pressure tap on downstream side of gas valve.

! WARNING

ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD

Failure to follow this warning could result in personal injury, death or property damage.

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position and install a lockout tag. There may be more than one disconnect switch. Lock out and tag switch with a suitable warning label. Verify proper operation after servicing.

3. Attach manometer to manifold pressure tap on gas valve.
4. Turn gas supply manual shutoff valve to ON position.
5. Turn furnace gas valve switch to ON position.
6. Check all threaded pipe connections for gas leaks.
7. Turn on furnace power supply.

GAS INPUT RATE INFORMATION

See furnace rating plate for input rate. The input rate for natural is determined by manifold pressure and orifice size.

Determine natural gas orifice size and manifold pressure for correct input at installed altitude by using [Table 4](#) or [Table 5](#).

NOTE: All models in all positions except Low NOx models in downflow and horizontal positions use [Table 4](#) or [Table 5](#) (22,000 BTUh per burner). Low NOx models in downflow or horizontal positions must use [Table 6](#) or [Table 7](#) (21,000 BTUh per burner). See input listed on rating plate.

1. Obtain yearly heat-value average (at installed altitude) for local gas supply.
2. Obtain yearly specific-gravity average for local gas supply.
3. Find installation altitude in [Table 4](#) or [Table 5](#).
4. Find closest natural gas heat value and specific gravity in [Table 4](#) or [Table 5](#).
5. Follow heat-value line and specific-gravity line to point of intersection to find orifice size and manifold pressure setting.

On two-stage and variable-speed furnaces, the gas valve must be set for Low Heat first and then set for High Heat. Furnace gas input rate on rating plate is for installations at altitudes up to 2000 ft. (610 M).

The input rating for altitudes above 2000 ft. (610 M) must be reduced by 4 percent for each 1000 ft. (305 M) above sea level.

The Conversion Kit Rating Plate accounts for high altitude derate.

SET GAS INPUT RATE

Single-Stage Gas Valve

1. Jumper R and W thermostat connections to call for heat. (See [Fig. 13](#))
2. Check manifold orifices for gas leaks when main burners ignite.

3. Adjust gas manifold pressure. (Refer to conversion kit rating plate).
4. Remove cap that conceals gas valve regulator adjustment screw.
5. Turn adjusting screw counterclockwise (out) to decrease manifold pressure or clockwise (in) to increase manifold pressure.
6. Replace gas valve regulator seal cap.
7. Verify manifold pressure is correct.

NOTE: Gas valve regulator seal cap **MUST** be in place when checking input rate. When correct input is obtained, main burner flame should be clear blue, almost transparent (See [Fig. 16](#)). Be sure regulator seal cap is in place when finished.

8. Remove jumper across R and W thermostat connections to terminate call for heat.
9. Turn furnace gas valve control switch or control knob to OFF position.
10. Turn off furnace power supply.
11. Remove manometer and re-install the manifold pressure tap plug.
12. Turn furnace gas-valve switch to ON position.
13. Turn on furnace power supply.
14. Set room thermostat to call for heat.
15. Check pressure tap plug for gas leaks when main burners ignite.
16. Check for correct burner flame.
17. After making the required manifold pressure adjustments, check and adjust the furnace temperature rise per the furnace installation instructions.

Fixed-Speed Blower (FCT/PSC), Two-Stage Gas Valve

1. Verify SW1 (LHT or TT) on furnace control is turned "ON". See [Fig. 15](#).
2. Jumper R and W/W1 thermostat connections to call for heat.
3. Check manifold orifices for gas leaks when main burners ignite.
4. Adjust gas manifold pressure (refer to conversion kit rating plate).
5. Remove caps that conceal adjustment screws for gas valve regulators. (See [Fig. 10](#))
6. Adjust low heat input rate manifold pressure for propane gas.
7. Turn low heat adjusting screw counterclockwise (out) to decrease input rate or clockwise (in) to increase input rate.
8. When correct input is obtained, main burner flame should be clear blue, almost transparent. (See [Fig. 16](#))
9. Jumper R and W/W1 and W2 on control center thermostat connections. This keeps furnace locked in high heat operation.
10. Adjust high heat input rate manifold pressure for propane gas.
11. Turn high heat adjusting screw counterclockwise (out) to decrease input rate or clockwise (in) to increase input rate.
12. Replace caps that conceal gas valve regulator adjustment screws.
13. When correct input is obtained, main burner flame should be clear blue, almost transparent. (See [Fig. 16](#))
14. Remove jumper across R, W1, and W2 after high heat adjustment to terminate call for heat.
15. Turn setup switch SW1 (TT) on furnace control to OFF position.
16. Turn furnace gas-valve switch to OFF position.
17. Turn off furnace power supply.
18. Remove manometer from the manifold pressure tap of the gas valve.
19. Turn on furnace power supply.
20. Set room thermostat to call for heat.
21. Check pressure tap plug for gas leaks when main burners ignite.
22. Check for correct burner flame.

23. After making the required manifold pressure adjustments, check and adjust the furnace temperature rise per the furnace installation instructions.

Variable Speed, Two-Stage Gas Valve

1. Verify SW1-2 on furnace control is turned "ON". (See Fig. 14)
2. Jumper R and W/W1 thermostat connections to call for heat.
3. Check manifold orifices for gas leaks when main burners ignite.
4. Adjust gas manifold pressure. (Refer to conversion kit rating plate 347789-201 or 347789-204.
5. Remove caps that conceal adjustment screws for gas valve regulators. (See Fig. 11)
6. Adjust low-heat manifold pressure for propane gas. (See Fig. 11)
7. Turn low-heat adjusting screw counterclockwise (out) to decrease input rate or clockwise (in) to increase input rate.

NOTE: When correct input is obtained, main burner flame should be clear blue, almost transparent. (See Fig. 16).

8. Jumper R, W/W1 and W2 on control center thermostat connections. This keeps furnace locked in high-heat operation.
9. Adjust high-heat manifold pressure for propane gas.
10. Turn high-heat adjusting screw counterclockwise (out) to decrease input rate or clockwise (in) to increase input rate.
11. Replace caps that conceal gas valve regulator adjustment screws.

NOTE: When correct input is obtained, main burner flame should be clear blue, almost transparent. (See Fig. 16).

12. Remove jumper across R, W1, and W2 after high-heat adjustment to terminate call for heat.
13. Turn setup switch SW1-2 on furnace control to OFF position.
14. Turn furnace gas valve switch to OFF position.
15. Turn off furnace power supply.
16. Remove manometer and re-install manifold pressure tap plug.
17. Turn furnace gas valve switch to ON position.
18. Turn on furnace power supply.
19. Set room thermostat to call for heat.
20. Check pressure tap plug for gas leaks when main burners ignite.
21. Check for correct burner flame.
22. Observe unit operation through two complete heating cycles.

23. See Sequence of Operation in furnace Installation, Start-Up, and Operating Instructions.

24. Set room thermostat to desired temperature.

After making the required manifold pressure adjustments, check and adjust the furnace temperature rise per the furnace installation instructions.

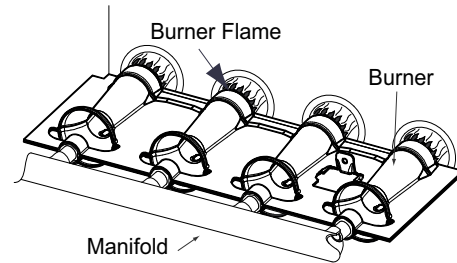


Fig. 16 – Burner Flame

A11461

Before leaving installation, observe unit operation through two complete heating cycles. During this time, turn gas supply to gas valve off just long enough to completely extinguish burner flame, then instantly restore full gas supply. To ensure proper low gas pressure switch operation, observe that there is no gas supply to burners until after hot surface igniter begins glowing.

LABEL APPLICATION

1. Fill in Conversion Responsibility Label 347789-205 and apply to Blower Access Door of furnace. Date, name, and address of organization making this conversion are required. (See Fig. 17)
2. Attach Conversion Rating Plate Label 347789-201 or 347789-204 to outer door of furnace. (See Fig. 6)
3. Apply Gas Control Conversion Label: Use Gas Control Conversion Label 347789-202 (See Fig. 18) Do not use 347789-203 which is similar.
4. Replace control access door, blower access door and outer door of furnace.

CHECKOUT

1. Observe unit operation through two complete heating cycles.
2. See Sequence of Operation in furnace Installation, Start-Up, and Operating Instructions.
3. Set room thermostat to desired temperature.

<p>THIS FURNACE WAS CONVERTED ON _____ TO NATURAL GAS <small>(DAY-MONTH-YEAR)</small> KIT NO.: AGAGC8PNS01B</p> <p>BY: _____</p> <p>_____ _____</p> <p><small>(Name and address of organization making this conversion), which accepts the responsibility that this conversion has been properly made.</small></p>	<p>347789-205 REV.-</p>
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Fig. 17 – Gas Conversion Responsibility Label

A210154

<p><small>This control has been converted for use with natural gas.</small></p> <p style="text-align: right;">347789-202 REV.-</p>	<p><small>This control has been adjusted for use with natural gas.</small></p> <p style="text-align: right;">347789-203 REV.-</p>
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Fig. 18 – Gas Control Conversion Label

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